II. REMARKS

Preliminary Remarks

Upon entry of this Amendment, claims 1 to 12 will be pending, of which claim 1 is independent. Claim 1, 3, and 5 are amended, claims 9 to 12 are new. Support for the claim amendments can be found in the specification and claims as filed (see, for example, original claims 1 and 5). Therefore, the applicants believe that no new matter is added as a result of the claim amendments and the new claims.

This response is filed within the shortened statutory period for response, no fee due. The applicants respectfully request reconsideration and allowance of the present application.

Patentability Remarks

Rejections under 35 U.S.C. §112 –

Claims 1 to 8 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The applicants respectfully traverse in view of the preceding claim amendments and succeeding remarks.

Claims 1 to 8 are amended to remove the narrower limitations, which form the subject of new claims 9 to 12. Claim 3 is amended to be directed to, *inter alia*, a process for the preparation of (per)fluorohalogenethers wherein the formula (II) compounds are acylfluorides (when q = 1) or ketones (when q = 0).

The applicants respectfully submit that with the above amendments, claims 1 to 8 (and new claims 9 to 12) are not indefinite under 35 U.S.C. §112, second paragraph, and respectfully request withdrawal of this rejection.

Rejection under 35 U.S.C. §103 –

Claims 1 to 8 were rejected under 35 U.S.C. §103 as being obvious over Guglielmo *et al.* (U.S. Pat. No. 5,710,345) in view of Navarrini *et al.* (U.S. Pat. No. 5,710,345). The applicants respectfully traverse in view of the preceding claim amendments and succeeding remarks.

The present invention relates to a process for directly preparing (per)fluorohalogenethers (I) with improved selectivity by reacting a carbonyl compound of formula (II), *i.e.*, an acyl fluoride or a ketone, with olefinic compounds (III) and F_2, in liquid phase, at low temperatures (-120°C and -20°C). The advantages of this process, with respect to those of the prior art, resides in that it is possible to obtain the same fluoroethers (I) without directly reacting olefins with a hypofluorite, which is a very unstable compound, and without using any catalyst requested when reacting hypofluorites with olefins (see specification as filed, page 5, lines 6 to 9).

In contrast, Guglielmo *et al.* disclose a process for preparing the instant (per)fluorohalogenethers (I) by directly reacting particular hypofluorites diluted in an inert solvent with the instant olefinic compounds (III) in liquid phase at low temperatures (-150°C to 0°C). These hypofluorites are prepared in a previous phase by reaction of the corresponding acyl fluoride with F_2 in gaseous phase in a catalytic reactor in the presence of a CFC solvent.

Clearly, Guglielmo *et al.* obtain the (per)fluorohalogenethers (I) by directly reacting an olefin with a hypofluorite instead of with a carbonyl compound (II) as presently claimed. Furthermore, the process of Guglielmo *et al.* requires a previous phase to obtain the hypofluorite from an acyl fluoride. This is because, when starting from an acyl fluoride, the process of Guglielmo *et al.* cannot directly result in the fluoroethers (I); instead, the process requires two subsequent, and different, phases.

The applicants have found that by following the teaching of Guglielmo *et al.*, *i.e.*, employing two subsequent, and different, phases, it is *possible* to obtain the same (per)haloethers (I) as presently claimed *but in a much lower selectivity.* In Example 2 (specification as filed, page 13), the ether CF_3-CF_2-CF_2O-CFCl-CF_2Cl is obtained according to the process of Guglielmo *et al.* (in two phases) by using CF_3-CF_2COF as acylfluoride, CF_3-CF_2-CF_2-OF as intermediate hypofluorite, and CFCl=CFCl as olefin. In comparison, in Example 1 (page 12), the same ether is obtained by directly reacting (in one phase) the same acylfluoride (CF_3-CF_2COF) and the same olefin (CFCl=CFCl) in the presence of F_2, without employing any intermediate hypofluorite (CF_3-CF_2-CF_2-OF).

In Example 2 the selectivity of the fluoroether is 48.1%, whereas in Example 1 the selectivity is 73%.

Navarrini *et al.* disclose a process for preparing halogenated dienes comprising the step of adding an olefin to a hypofluorite of formula $CXY(OF_2)$ dissolved in an inert solvent at temperature within -140°C and +60°C, thus obtaining a product which is submitted to dehalogenation to give the dienes. Similar to Guglielmo *et al.*, Navarrini *et al.* disclose direct reaction of an olefin with a hypofluorite instead of a carbonyl compound, as claimed. In other words, all the problems with respect to Guglielmo *et al.* also exist with respect to Navarrini *et al.* Therefore, Navarrini *et al.* cannot, and do not, overcome the limitations of Guglielmo *et al.*

The applicants respectfully submit that Guglielmo *et al.* in view of Navarrini *et al.* do not teach or fairly suggest, to one of ordinary skill in the art, a process for obtaining (per)fluorohalogenethers of formula (I) with improved selectivity by directly reacting an olefin with a carbonyl compound as claimed in amended claims 1 to 8 (or in new claims 9 to 12). Therefore, the applicants respectfully request withdrawal of this rejection.

III. CONCLUSION

In view of the amendments and remarks above, the applicants respectfully submit that this application is in condition for allowance and request favorable action thereon.

In the event this response is not timely filed, the applicants hereby petition for an appropriate extension of time. The fee for this extension, along with any other additional fees which may be required with respect to this response, may be charged to Deposit Account No. 01-2300, referencing Attorney Docket No. 108910-00114.

Respectfully submitted,

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